

IN THE CLAIMS:

1. (Previously Presented) Method for producing steel products (1) with optimum surface quality, such as automobile skin sheet or sheet for welded pipes, especially with ultralow carbon contents (ULC or IF steel), nitrogen contents, total oxygen contents, high-strength and/or stainless steel grades, in each case by melting (2) on the basis of an electric arc furnace (2b) and treatment in a ladle metallurgy installation (3), after which the steel is continuously cast (4) into a thin slab (5a) in the continuous casting mold (14), descaled, partially deformed, cut into partial strand lengths (15), generally descaled (28), heated to rolling temperature and homogenized in a soaking furnace (16), generally descaled again and rolled in a finishing mill (6a), coiled in a first coiling station (20) immediately downstream of the last finishing stand (19) or, alternatively, downstream of a cooling line (21), and the final microstructure (9) is adjusted in a cooling line (21) according to the desired grade of steel by cooling on a runout table (22), and the rolled product (1a) is generally finish-coiled in a second coiling station (23), wherein the molten steel (1b) is produced in a process route (10, 100; 12; 13) that is selected according to the desired final microstructure (9),

(a) by producing molten steel (1b) in a melting installation (2a), which is not a steelworks converter, by a vacuum degassing system (27), and in a ladle furnace (25), or

(b) by melting in an electric arc furnace (2b) or in a CONARC double furnace, in a ladle furnace (25) with an electrode system (31), and in a vacuum degassing system, or

(c) by melting in an electric arc furnace installation (35) or a CONARC double furnace (30) or an individual furnace vessel (30), in a ladle furnace (25), and in a differential-pressure vacuum degassing system (43), or

(d) by melting in an electric arc furnace (2b) with additions of alloying materials (26), a partial-quantity degassing in the ladle furnace (25), or a vacuum degassing system (27) and a ladle degassing (27).

2. (Previously Presented) Method in accordance with Claim 1, wherein successive treatment steps (24) are carried out as a first process route (10)

- in an electric arc furnace (2b) and
- in a ladle metallurgy installation (3)

-- with at least one vacuum degassing system (27) followed by a ladle furnace (25) for decarbonization, reduction, and addition of alloying materials (26), and

-- with a ladle furnace (25) for slag formation, for slag work, for temperature control, for final adjustment of the final

analysis, and for purity rinsing to Δ <Al> contents.

3. (Previously Presented) Method in accordance with Claim 1, wherein successive treatment steps (24) are carried out as the second process route (11)

- in an electric arc furnace (2b) or an electric arc furnace installation (35) and

- in a ladle metallurgy installation (3)

- with a ladle furnace (25) for slag formation

- \Rightarrow for the heating

- \Rightarrow and for the prereduction (FeMnHC) of the steel

- with a vacuum degassing system (27)

- \Rightarrow for the decarbonization and denitrogenation

- \Rightarrow for the reduction of the slag on the steel surface

- \Rightarrow for the desulfurization under reduced pressure,

- \Rightarrow for the final adjustment of the final analysis and

- \Rightarrow for the purity rinsing to Δ <Al> under atmospheric pressure.

4. (Previously Presented) Method in accordance with Claim 1, wherein successive treatment steps (24) are carried out as the third process route (12)

- in an electric arc furnace (2b) or in an electric arc furnace installation (35) and

- in a ladle metallurgy installation (3)
- with a ladle furnace (25)
 - ⇒ for temperature control and
 - ⇒ for prereduction (FeMnHC)
- with at least one differential-pressure degassing process (43) for the decarbonization, desulfurization and denitrogenation, reduction, and addition of alloying materials from an iron alloy, and with final adjustment of the final analysis and
 - ⇒ for the purity rinsing to <Al> contents < 15 ppm bound aluminum (Al_2O_3).

5. (Previously Presented) Method in accordance with Claim 1, wherein successive treatment steps (24) are carried out as the fourth process route (13)

- in an electric arc furnace (2b) or in an electric arc furnace installation (35) and

- in a ladle metallurgy installation (3) with a ladle furnace (25) for temperature control and a subsequent partial-quantity degassing (27a) for decarbonization and denitrogenation, desulfurization, with a ladle degassing (27) for the final adjustment of the final analysis and for purity rinsing to Δ <Al> contents.

6. (Previously Presented) Method in accordance with Claim 1, wherein a descaling (28) is carried out directly below the continuous casting mold (14).

7. (Previously Presented) Method in accordance with Claim 1, wherein a controlled high-temperature oxidation (29) by a controlled atmosphere is carried out in the soaking furnace (16).

8. (Previously Presented) Method in accordance with Claim 1, wherein the partial strand lengths (15) are inductively heated downstream of the soaking furnace (16).

9. (Previously Presented) Method in accordance with Claim 1, wherein the partial strand lengths (15) are subjected to controlled cooling upstream of the first finishing stand (17) of the finishing mill (6a).

10. (Previously Presented) Method in accordance with Claim 1, wherein continuous product (1c) coiled in the second coiling station (23) is subjected to controlled cooling.

11. (Previously Presented) Method in accordance with Claim 1, wherein the electric arc furnace installation (35) comprises two furnace vessels (30), which are alternately operated with a

swiveled electrode system (31) and an oppositely swiveled top injection lance (32), are operated with pig iron, direct reduced charge materials, and scrap, and are operated partially with electric power and/or chemical energy.

12. (Previously Presented) Method in accordance with Claim 1, wherein steels with multiphase microstructure (dual-phase steel 33 or TRIP steel 34) are produced.

13. - 19. (Cancelled)